

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

ZF NORTH AMERICA, INC., ZF ACTIVE SAFETY US INC.,
Petitioner,
v.
STONERIDGE CONTROL DEVICES, INC.,
Patent Owner.

Case No.: IPR2023-00273
Patent No. 7,021,415

Before SCOTT C. MOORE, BARRY L. GROSSMAN, and GEORGE R. HOSKINS,
Administrative Patent Judges.

Petitioners' Demonstrative Exhibit

Roadmap

- Overview of the '415 Patent
- Overview of the Prior Art
- What Is Not in Dispute
- Claim Construction Should Apply Ordinary Meaning
 - No need to read limitations into construction of “sub-frame” and “housing”
- Motivation Exists to Combine Poertzgen and Boucheret
 - Claims use known components (isolators) in their expected manner to achieve the predicted result (NVH dampening)
 - PO's arguments rely on unsupported, unclaimed differences between references
- Poertzgen Teaches a Sub-frame and Motor Isolation Cavity

Roadmap (cont.)

- Weiler Teaches an Actuator Housing and Isolation Bushing
- There is Motivation to Combine Weiler and Boucheret
- PO's Alleged Evidence of Non-obviousness Lacks Nexus
- Dr. Lequesne meets and surpasses the skill of a POSITA
- These Proceedings are Constitutional
- IPRs May be Brought on Expired Patents

Overview of the '415 Patent

- An electromechanical actuator that uses a motor and gear train to, e.g., engage and release a parking brake. The motor turns gears to generate the output. Certain components (e.g., gears, motor) may be attached to a sub-frame, and at least partially covered by a housing.
- Certain components (e.g., gears, motor, sub-frame, housing) may have isolators (cushions) placed between them. These isolators do what all isolators do – dampen the transmission of NVH. The claims recite generic isolators – they may be of any size, shape, hardness, damping ability, tolerances, etc. Their design is left entirely to the discretion of the POSITA.
- Many of the '415 patent claims omit isolators, but those claims were disclaimed in response to the Petition.

(Ex. 1001, Abstract, claims 1-25; Pet., Paper 2, pp. 4-5; Ex. 1002, Lequesne Decl., ¶¶ 42-57)

Overview of the '415 Patent

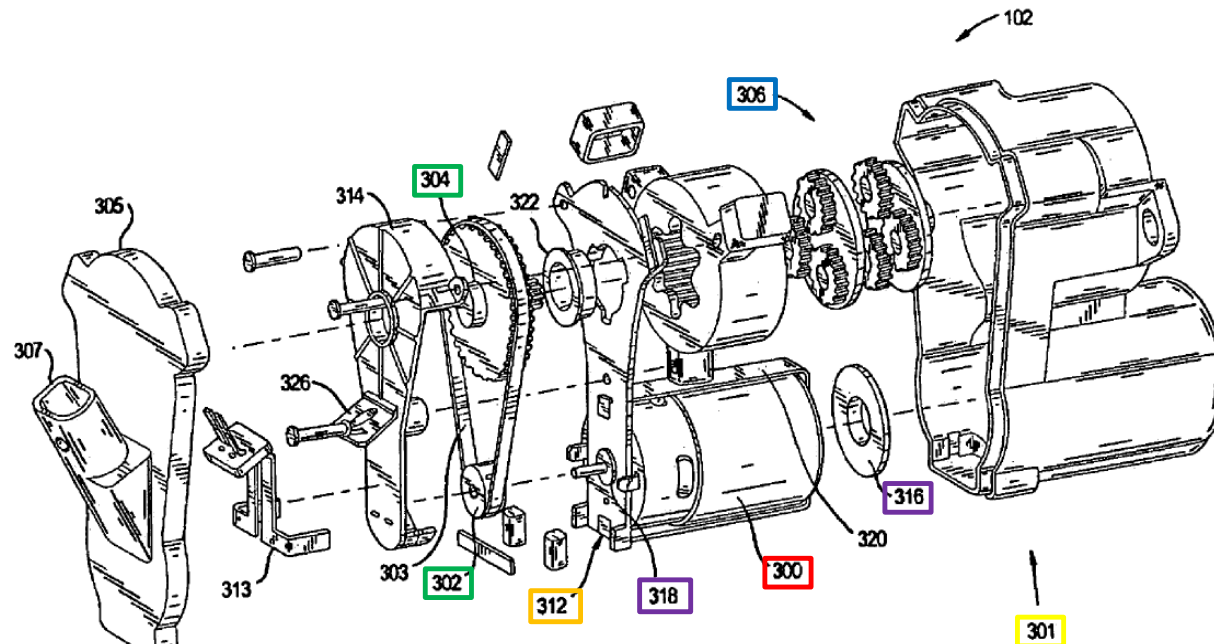


FIG. 7

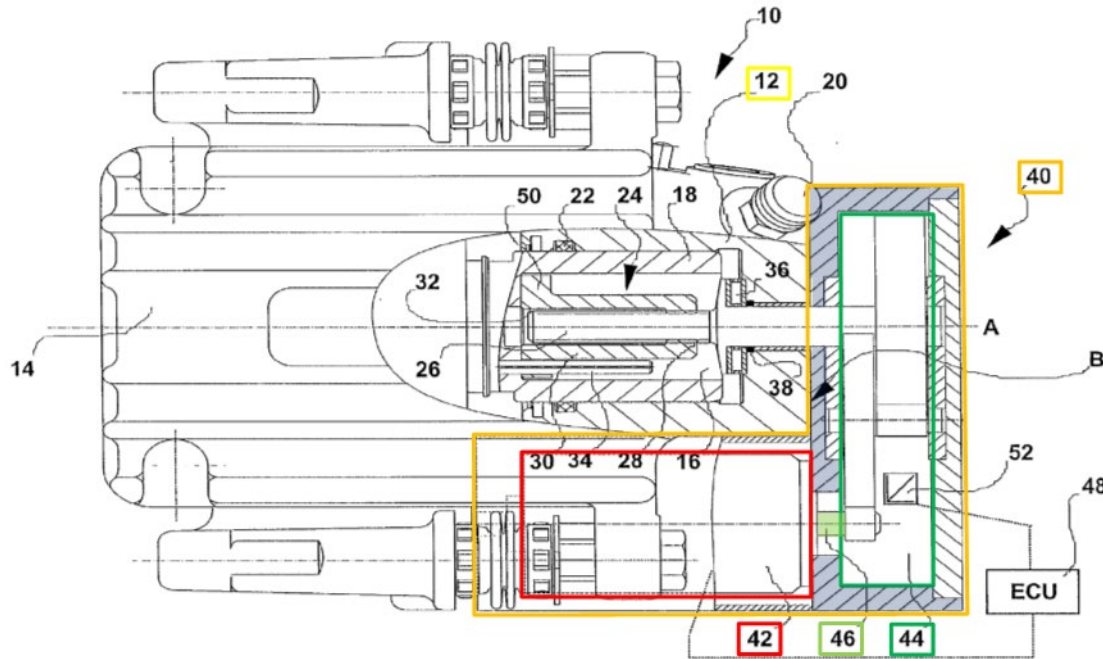
An actuator is shown in Figure 7, in which the motor 300 (red) rotates pulley gears 302 and 304 (green), which rotate planetary gears 306 (blue). Ex. 1001, 4:23-43. The motor and gears are attached to a plate, sub-frame 312 (orange), and placed in a housing 301 (yellow). *Id.*, 4:44-54. Isolators 316, 318 (purple) reduce transmission of NVH. *Id.*, 5:46-56, 6:1-11, 6:44-53, 7:7-20; Ex. 1002, ¶ 57.

(Ex. 1001, Fig. 7 (annotated);
Pet., Paper 2, pp. 4-5)

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Primary Reference: Poertzgen



Ex. 1007, Figure 1 (annotated).

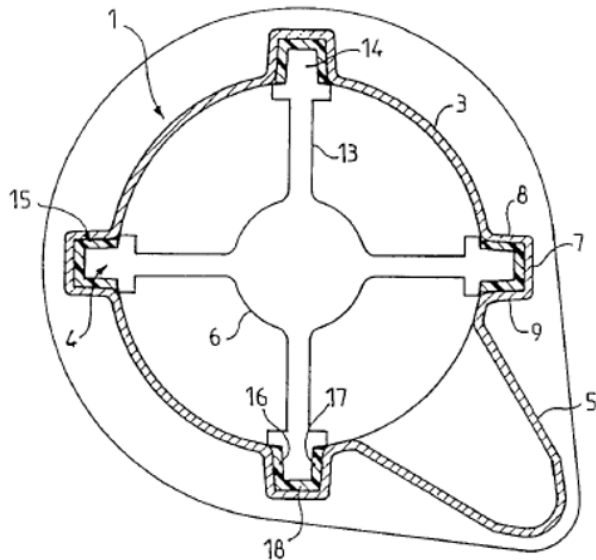
- Poertzgen has an actuator 40 (orange) with an electric motor 42 (red). There is a plate (gray) between the motor and the gears through which the driveshaft 46 (light green) passes (all or part of which is the recited “sub-frame”), to which the motor 42 (red) and gears 44 (green) are mounted.

(Pet., Paper 2, pp. 7-8, 24-25; Ex. 1002, Lequesne Decl., ¶¶ 64-67; Ex. 1007, Poertzgen, Abstract, 2:24-3:8, 7:8-10, 8:9-14, Fig. 1)

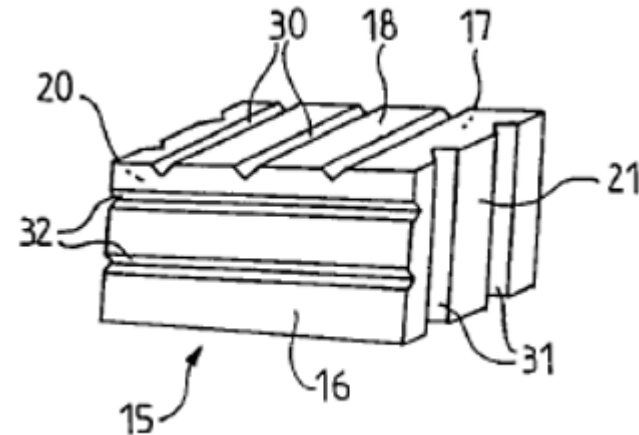
Secondary Reference: Boucheret

- Boucheret uses multiple isolators, i.e., “damping elements 15 ... adapted to serve as vibration dampers, in particular between the electric motor 6 and the housing 1” in a vehicle.

(Pet., Paper 2, p. 9; Ex. 1002, Lequesne Decl., ¶¶ 68-70; Ex. 1010, Boucheret, 3:20-22, Figs. 3-4)



Ex. 1010, Figure 3



Ex. 1010, Figure 4

The POSITA's Knowledge of Isolators

- Using isolators to dampen NVH from electric motors is shown in Boucheret, and has been known for nearly a century: a patent from 1934 placed cushioning rubber bearing assemblies at opposite ends of an electric motor to reduce vibrations.

(Pet., Paper 2, p. 3; Ex. 1002, Lequesne Decl., ¶¶ 50, 277; Ex. 1021, Lequesne 2d Decl., ¶ 14; Ex. 1018, 1:1-27, 2:5-11, 2:31-74, 2:89-98)

Patented Aug. 28, 1934

1,971,417

5 This invention relates to supports for dynamo-electric machines, particularly electric motors, and has for its object to provide a yielding support for the housing of such a machine which will effectively dampen vibrations set up in the housing due to rapid rotation of the armature therein and prevent transmission of vibrations to the supporting structure, thereby insuring smooth and noiseless operation.

20 A further object is to provide cushioning bearings for the housing, such that the motor or dynamo can be quickly and easily mounted in the support, or can be easily and quickly removed therefrom.

25 A further object is to provide one-piece cushioning blocks so mounted on the bearing portions of the housing and within bearing pockets of supporting members that they serve to effectively cushion torsional and other thrusts transmitted through the housing to the supports.

The POSITA's Knowledge of Isolators

- Using passive isolators to dampen NVH is taught in introductory automotive engineering texts as one of the “simpler” ways to reduce NVH.

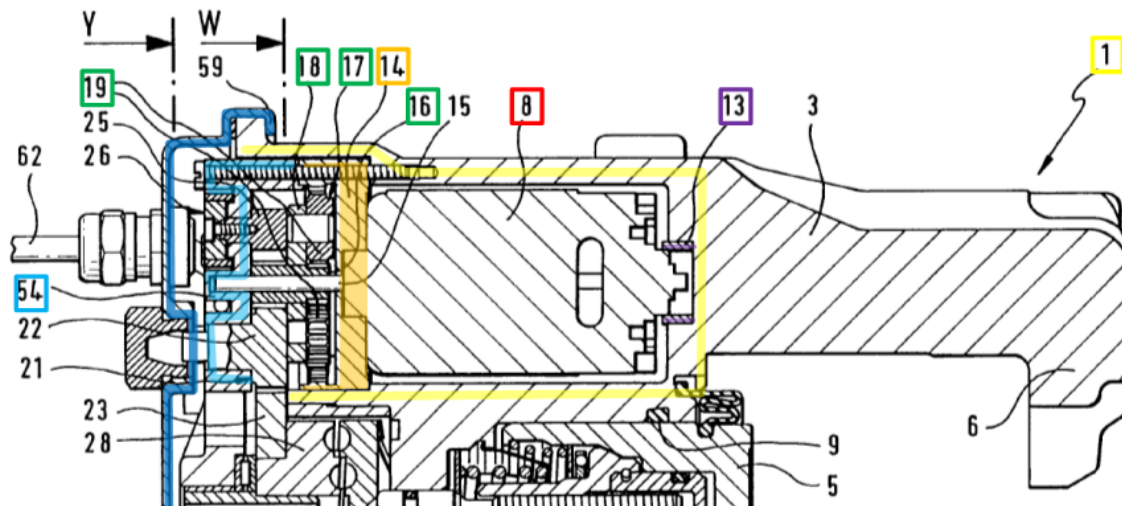
(Pet., Paper 2, p. 3; Reply, Paper 18, p. 6; Ex. 1002, Lequesne Decl., ¶¶ 48-52, 160; Ex. 1014, 198; Ex. 1021, Lequesne 2d Decl., ¶ 12)

An Introduction to Modern Vehicle Design

8.3.1 Vibration isolation

This is a way of localizing the vibration to the vicinity of the source, thereby preventing its transmission to other parts of a (vehicle body) structure where it may result in the generation of noise. It can be achieved by the use of either passive or controllable vibration isolators. **Passive isolators range from simple rubber** in shear or combinations of shear and compression components to quite sophisticated hydro-elastic elements. **The simpler forms of isolator** are a cost-effective solution for sources with a limited range of operating conditions (amplitudes and

Primary Reference: Weiler



- Weiler has a motor 8 (red) and planetary gears 16-19 (green) attached to a sub-frame (bearing plate 14 (orange)), which is coupled with gear cover 54 (light blue) to form a subassembly that is then placed into a housing (yellow) recessed into the brake caliper 1 and eventually covered with housing cover 58 (dark blue). A bushing 13 (purple) is interposed between the motor and the housing.

(Pet., Paper 2, pp. 13-14, 72-74, 78; Ex. 1002, Lequesne Decl., ¶¶ 79-82; Ex. 1012, Weiler, 2:17-28, 6:10-7:2, 8:16-9:6, 13:28-14:29, Fig. 2 (annotated))

IPR Grounds (§ 103)

Ground	Prior Art ²	Claims Challenged	Sec.
A	Obvious under 35 U.S.C. § 103 over Poertzgen	2, 6, 9-13	IV
B	Obvious under 35 U.S.C. § 103 over Poertzgen in view of Boucheret	3-5, 7-8, 14-19	V
C	Obvious under 35 U.S.C. § 103 over Poertzgen in view of Schumann	1	VI
D	Obvious under 35 U.S.C. § 103 over Poertzgen in view of Drennen	6, 10-13	VII
E	Obvious under 35 U.S.C. § 103 over Poertzgen in view of Boucheret and Drennen	5, 7-8, 14-19	VIII
F	Obvious under 35 U.S.C. § 103 over Poertzgen in view of Weiler	6, 10-13	IX
G	Obvious under 35 U.S.C. § 103 over Poertzgen in view of Boucheret and Weiler	5, 7-8, 14-19	X
H	Obvious under 35 U.S.C. § 103 over Weiler	20-25	XI
I	Obvious under 35 U.S.C. § 103 over Weiler in view of Boucheret	23-25	XII

All Disclaimed

3-4 Disclaimed

All Disclaimed

All Disclaimed

All Disclaimed

20-23 Disclaimed

23 Disclaimed

(Inst. Dec., Paper 9, pp. 8-9; Pet., Paper 2, p. 15)

IPR Grounds (§ 103)

Ground ⁴	Claims Challenged	35 U.S.C. § ⁵	Reference(s)/Basis
1	5, 7, 8, 14–19	103(a)	Poertzgen ⁶ , Boucheret ⁷
2	5, 7, 8, 14–19	103(a)	Poertzgen, Boucheret, Drennen ⁸
3	5, 7, 8, 14–19	103(a)	Poertzgen, Boucheret, Weiler ⁹
4	24, 25	103(a)	Weiler
5	24, 25	103(a)	Weiler, Boucheret

(Inst. Dec., Paper 9, p. 8)

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What Is Not In Dispute

- Claims 1-4, 6, 9-13, and 20-23 are disclaimed.
- Poertzgen-Boucheret contains all elements other than a “sub-frame” and “motor actuator housing” (claim 18 only)
- Weiler-Boucheret contains all elements except “actuator housing.”
- Passive isolators for damping NVH were known in the art and are taught in Boucheret.
(Motivation for their placement is disputed).

(POR, Paper 12, generally; Reply, Paper 18, p. 1-3)

Independent Claim 5 (disputes in red)

Disputed

Disputed

Claim 5	
[5A]	5. An electrically actuated parking brake system comprising:
[5B]	a vehicle power source;
[5C]	an electromechanical actuator comprising a motor having a drive shaft, a drive gear coupled to said drive shaft, a driven gear coupled to said drive gear,
[5D]	at least one planetary gear set coupled to said driven gear for driving an actuator output, and
[5E]	a <u>sub-frame</u> , said motor being mounted on said <u>sub-frame</u> ,
[5F]	said actuator further comprising a component isolator having a spring constant and a damping constant, said isolator coupled between said motor and said <u>sub-frame</u> ; and
[5G]	a brake caliper coupled to said actuator output, said actuator output being configured for driving said brake caliper between an engaged position and a released position.

Dependent Claim 18 (disputes in red)

Claim 18	
[18]	18. The system according to claim 17, said actuator housing comprising a <u>motor isolation cavity</u> receiving at least a portion of said motor, wherein said <u>sub-frame</u> cooperates with said housing to separate said motor from at least one of said drive gear, driven gear and said planetary gear set.

Independent Claims 24-25 (disputes in red)

Disputed

Claim 20	
[20A]	20. A method of assembling an actuator comprising:
[20B]	mounting a motor and a gear train to a sub-frame;
[20C]	coupling said sub-frame to a portion of an <u>actuator housing</u> to at least partially enclose said motor in a motor isolation cavity defined by said portion of said <u>actuator housing</u> and said sub-frame.

Disputed

Claim 24	
[24A]	24. A method according to claim 20, said method further comprising:
[24B]	providing a first motor isolation bushing between said portion of said <u>actuator housing</u> and said motor; and
[24C]	providing a second motor isolation bushing between said sub-frame and said motor.

Disputed

Claim 25	
[25A]	25. A method according to claim 20, said method further comprising:
[25B]	providing at least one isolation bushing between said portion of said <u>actuator housing</u> and said sub-frame.

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The Ordinary Meaning of Sub-Frame Applies

- The POR admits the ordinary meaning of “sub-frame” is “a frame for a sub-assembly.”

(POR, Paper 12, pp. 6, 16)

- The intrinsic evidence supports this ordinary meaning:
 - The specification provides no formal definition and refers to the sub-frame as a frame upon which other components are mounted.

(Ex. 1001)

- PO’s expert couldn’t give an ordinary meaning of “sub-frame,” but testified that the term is a “very generic term that doesn’t have a lot of definitive meaning” and is a “placeholder name.”

(Reply, Paper 18, p. 13; Ex. 1022, 74:8-75:15)

PO's Improper Narrowing of “Sub-frame”

- PO argues “sub-frame” must be “distinct from” the actuator housing, because in some embodiments and claims they cooperate with each other.

(POR, Paper 12, pp. 16-17)

- “Sub-frame” need not be “distinct from” or defined at all with respect to the housing.
 - The '415 patent does not define sub-frame narrowly.
 - The '415 patent states its embodiments are not limiting.
 - Many claims do not recite a housing.
 - The '415 patent indicates that both the housing and sub-frame can share functionality: each may partially enclose components.

(Reply, Paper 18, pp. 13; Ex. 1001, 1:66-67, 7:20-23, 7:30-33, 8:36-42, claims; Ex. 1022, Stein Depo., 74:8-75:15, 125:3-131:17, 133:1-6)

The Ordinary Meaning of Actuator Housing Applies

- The POR proffers that an actuator housing is “an outer casing of the actuator.” But to avoid Weiler, PO further limits “actuator housing”: it cannot be a portion of a brake caliper.

(POR, Paper 12, p. 19; Reply, Paper 18, pp. 19-20)

- The Board preliminarily rejected this argument:

challenged claims 24 and 25 do not recite a brake caliper, much less require that the recited “actuator housing” be a structure separate from the brake caliper. Patent Owner also fails to identify any lexicographic definition or disclaimer sufficient to limit the claim term “actuator housing” to a structure separate from a brake caliper. On the facts presented here, it appears that

(Inst. Dec., Paper 9, pp. 36-37)

- The Board remains correct: Nothing in the ’415 patent restricts actuator housing to anything other than a structure that houses at least part of the actuator.

(Reply, Paper 18, p. 20; Ex. 1001, Fig. 3)

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The Motivation to Add Isolators to Poertzgen is to Dampen NVH

- Using isolators in Poertzgen is a classic example of applying a known technique (placing an isolator between components to reduce NVH) to improve a similar device (Poertzgen's actuator having an electric motor mounted to other components) in the same way (NVH is dampened).
- It also is an example of combining prior art elements (Boucheret's isolator and Poertzgen's motor and surrounding parts) according to known methods (placing the isolator between components) to obtain the predictable result (NVH is dampened).

(Pet., Paper 2, pp. 3, 9, 35-50; Reply, Paper 18, pp. 1-13; Ex. 1002, Lequesne Decl., ¶¶ 48-52, 159, 161-66, 172, 175, 177-81, 184-86, 196, 199-200)

The Claimed Isolators Simply Do What Isolators Are Known to Do: Dampen NVH

- The claims do not recite a new isolator, or even a new use for an isolator.

(Pet., Paper 2, p. 3, 9, 35-50; Reply, Paper 18, pp. 1, 3-4, 8; Ex. 1002, Lequesne Decl., ¶¶ 48-52, 56, 159, 161-66, 172, 175, 177-81, 184-86, 196, 199-200; Ex. 1014, 198)

- The claimed isolators are completely generic: they may be of any material, shape, size, hardness, tolerances, etc.

(Reply, Paper 18, p. 1-2, 4, 10; Ex. 1001, claims; Ex. 1021, Lequesne 2d Decl., ¶ 5)

- The claimed isolators need not even isolate particularly well – the claims require no particular amount of dampening of NVH.

(Reply, Paper 18, p. 1, 3, 10; Ex. 1001, claims; Ex. 1021, Lequesne 2d Decl., ¶¶ 6, 17; Ex. 1022, Stein Depo., 115:12-116:12)

Boucheret's Concept of Using Isolators Is Readily Applied to Poertzgen's Actuator

- Boucheret teaches that isolators can be placed between components in a vehicle's actuator to dampen NVH from, e.g., an electric motor.

(Pet., Paper 2, p. 9; Reply, Paper 18, pp. 2, 8; Ex. 1002, Lequesne Decl., ¶¶ 68-70; Ex. 1014, 198)

- Poertzgen discloses an actuator in a vehicle for which isolators would dampen the electric motor's NVH.

(Pet., Paper 2, pp. 7-8, 35-38; Reply, Paper 18, pp. 3, 8, 10-11; Ex. 1002, Lequesne Decl., ¶¶ 65-67, 159-60, 164-67; Ex. 1021, Lequesne 2d Decl., ¶¶ 2, 18)

- While the concept being taken from Boucheret is independent of Boucheret's precise application, both Boucheret and Poertzgen disclose electromechanical actuators with electric motors for use in vehicles.

(Pet., Paper 2, p. 7-9; Reply, Paper 18, pp. 2, 9-10; Ex. 1002, Lequesne Decl., ¶¶ 164-67; Ex. 1021, Lequesne 2d Decl., ¶ 14)

PO Disputes MTC by Pointing to Unclaimed and Fictitious Differences Between References

- PO asserts Poertzgen is a precision (hard-mounted) actuator reliant on sensors and operating in bursts, but Boucheret is a constant-speed actuator for an AC fan unconcerned with tolerances.
- The alleged differences are largely **fictitious**:
 - Poertzgen requires no particular tolerances, does not mention hard-mounting, and states sensors are optional.
 - Boucheret is not limited to an actuator for an AC fan; like Poertzgen, provides no requirements for tolerances; and is not limited to operation of any particular speed or duration.

(POR, Paper 12, pp. 31-33; Reply, Paper 18, p. 2, 4-9; Ex. 1007, Poertzgen, 3:17-20, 9:3-7; Ex. 1010, Boucheret, 4:44-45, claims 1-15; Ex. 1021, Lequesne 2d Decl., ¶¶ 8, 11, 13-14; Ex. 1022, Stein Depo., pp. 150:21-25, 158:20-159:21, 160:22-162:2, 166:11-18, 168:3-18, 176:21-177:11)

PO Treats Preferred Embodiments of the Prior Art as the Sole Teaching of the Prior Art

- Nearly all of PO's alleged distinctions can be discounted as improperly treating a preferred embodiment of a reference as a requirement of that reference.
- But prior art is useful for all it teaches, and the teaching is not limited to a preferred embodiment. *Belden Inc. v. Berk-Tek LLC*, 805 F.3d 1064, 1076 (Fed. Cir. 2015).

(Reply, Paper 18, p. 8-9)

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- PO asserts Poertzgen is a precision (hard-mounted) actuator reliant on sensors and operating in bursts, but Boucheret is a constant-speed actuator for an AC fan unconcerned with tolerances.
- The alleged differences are **unclaimed** (irrelevant):
 - The claims do not require any particular tolerances, motor speed, motor duration, isolator hardness or performance, etc.

(POR, Paper 12, pp. 31-33; Reply, Paper 18, p. 1-10; Ex. 1001, claims; Ex. 1021, Lequesne 2d Decl., ¶¶ 5-6, 8, 10, 15, 17; Ex. 1022, Stein Depo., pp. 100:7-23, 108:10-110:13, 147:16-23, 153:2-157:23)

PO's Expert Admitted the Alleged Distinctions between Poertzgen and Boucheret are Unclaimed

- Claims cover short-burst and constant-speed motors:

10 Q. Is it your view that the claims of the
11 415 Patent require the motor to be controlled in
12 any particular way or is it agnostic as to that?

13 A. I have to review all of the claims, but
14 as I sit here, I don't believe that the claims
15 mention anything about the motor control, but it
16 may be mentioned in the specification somewhere.

25 about that. In your view, do the claims of the 415
1 Patent, require that the motor operate at any
2 particular speed?

3 A. There isn't a specific speed
4 requirement that is described in the 415 Patent,
5 no.

(Ex. 1022, Stein Depo.. 108:10-109:5)

PO's Expert Admitted the Alleged Distinctions between Poertzgen and Boucheret are Unclaimed

- Claims cover actuators with tight and loose tolerances:

16 Q. Do the claims of the 415 Patent require
17 any particular mechanical tolerances with respect
18 to the claimed actuators?

19 A. So I -- before we were talking about
20 size requirements in the claims and there are no
21 numerical sizing requirements nor are there any
22 specific tolerances on sizes or parameters that are
23 part of the design.

(Ex. 1022, Stein Depo.. 147:16-23)

Reliance on Unclaimed Features Does Not Disprove Motivation to Combine

“The inquiry is not whether a relevant artisan would combine a first reference’s features with a second reference’s features to meet requirements of the first reference that are not requirements of the claims at issue.”

Axonics, Inc. v. Medtronic, Inc., 73 F.4th 950, 957-58 (Fed. Cir. 2023).

(Reply, Paper 18, p. 10)

PO's Argument that Adding Isolators to Poertzgen Could Potentially Ruin It, Is Unsupported

- PO's expert posits that isolators could ruin the tolerances required for Poertzgen to operate optimally.
- **No** prior art teaches against using isolators with complex, precision systems.
- Dr. Lequesne: “None of the prior art, including the background textbook on NVH, teaches that isolators should not be used in ... precision systems.”
- Dr. Stein, when asked if any of the prior art in the IPR contains a discussion of the drawbacks of using vibration dampers in systems with tight tolerances, answered: “I’m not aware any of those do.”

(Reply, Paper 18, p. 4; Ex. 1021, Lequesne 2d Decl., ¶ 2; Ex. 1022, 176:21-177:11)

PO's Argument that Adding Isolators to Poertzgen Could Potentially Ruin It, Is Irrelevant

- PO's expert posits that isolators could ruin the tolerances required for Poertzgen to operate optimally.
- **Any** component, including obvious ones, may be added to a system shoddily, potentially causing the system to be sub-optimal.
- But the skilled POSITA is trying to succeed, not fail.
- And, the claims require no particular degree of performance from the actuator or the isolator. They cover optimized actuators and isolators, and sub-optimal actuators and isolators.

(Reply, Paper 18, pp. 4-6, 8)

PO's Argument that Adding Isolators to Poertzgen Could Potentially Ruin It, Is Irrelevant

“The fact that it would take some creativity to carry out the combination does not defeat a finding of obviousness.”

Facebook, Inc. v. Windy City Innovations, LLC, 973 F.3d 1321, 1343 (Fed. Cir. 2020)

(Reply, Paper 18, p. 8; Ex. 1022, Stein Depo., 147:16-23)

If the Pitfalls of Using Isolators Imagined by PO Exist, the '415 Patent Trusts the POSITA to Traverse Them

- The '415 patent does not address how to overcome alleged issues with tolerances when using isolators, and provides no details on what the size, shape, hardness, or damping ability of an isolator should be.
- All such details are left to the discretion of the POSITA, undermining PO's arguments that a POSITA could not successfully implement isolators in Poertzgen or Weiler. *Muniauction, Inc. v. Thomson Corp.*, 532 F.3d 1318, 1327 n.3 (Fed. Cir. 2008).

(Ex. 1001; Reply, Paper 18, pp. 1, 4-5, 10; Ex. 1021, Lequesne 2d Decl., ¶¶ 5-6, 8, 10, 15, 17; Ex. 1022, Stein Depo., 100:7-23, 141:14-142:21, 147:16-23)

If Using Isolators Tends to Make Actuators Worse, that Is a Shortcoming of the Alleged Invention

- When PO argues that isolators tend to ruin precision actuators, PO is simply attacking the usefulness of its own invention, not explaining why it is inventive.
- Even if better (unclaimed) options for reducing NVH existed, this does not preclude a motivation for also practicing the claimed, less optimal isolators.
- The existence of better alternatives “does not mean that an inferior combination is inapt for obviousness purposes.” *In re. Mouttet*, 686 F.3d 1322, 1333-34 (Fed. Cir. 2012).

(Reply, Paper 18, at 5)

Both Experts Agree that a POSITA Would Know that Rotating Parts Generate NVH to be Dampened

- PO argues that a POSITA would not even know that Poertzgen or Weiler's motor and gears generate NVH.
(POR, Paper 12, pp. 1, 30)
- Both experts disagree.

(Reply, Paper 18, p. 10; Ex. 1022, Stein Depo., 116:20-121:4; Ex. 1002, Lequesne Decl., Ex. 1021, ¶ 184; Ex. 1021, Lequesne 2d Decl., ¶ 18)

PO's Expert:

Q: They [POSITAs] could likely identify the gear train or motor as a possible source of vibrations?

A: Yes, for sure.

(Ex. 1022, Stein Depo., 120:21-23, 116:20-121:4 Reply, Paper 18, p. 11)

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(POR, Paper 12, pp. 1, 30)
- Both experts disagree.

(Reply, Paper 18, p. 10; Ex. 1022, Stein Depo., 116:20-121:4; Ex. 1002, Lequesne Decl., Ex. 1021, ¶ 184; Ex. 1021, Lequesne 2d Decl., ¶ 18)

Petitioner's Expert:

“A POSA would look for the source or sources of vibrations and noise (NVH), and consider, as a matter of course, the motor and the gears as potential NVH sources.”

“A POSA is familiar with electromechanical systems such as actuators, and is certainly aware that moving parts, such as motors and gears can generate NVH.”

(Ex. 1002, Lequesne Decl., ¶ 184; Ex. 1021, Lequesne 2d Decl., ¶ 18; Reply, Paper 18, pp. 11)

The Art Teaches that Rotating Parts Generate NVH to be Dampened

- Boucheret teaches that electric motors generate NVH, which is why it discloses isolators in the first place.

(Reply, Paper 18, p. 11; Ex. 1010, Boucheret, 3:20-22)

- Poertzgen likewise teaches that its motor generates NVH.

(Reply, Paper 18, p. 11; Ex. 1007, Poertzgen, 3:6-8)

- The background textbook likewise teaches that rotating parts generate NVH.

(Reply, Paper 18, p. 11; Ex. 1014, pp. 187, 188, 197; Ex. 1021, Lequesne 2d Decl., ¶ 18)

A POSITA Would Know to Place Isolators Anywhere Along the Path of Transmission of NVH

- PO argues that a POSITA would not place isolators in the locations cited in the claims.

(POR, Paper 12, p. 31)

- But, a POSITA would place isolators between any two components that would otherwise transmit NVH.

(Pet., Paper 2, pp. 3, 35-37, 41, 43-44, 48-49; Reply, Paper 18, p. 11-12; Ex. 1002, Lequesne Decl. ¶¶ 51, 164; Ex. 1021, Lequesne 2d Decl., ¶ 18)

- “Placing a resilient isolator, as taught by Boucheret, between any component (including an electric motor) that may generate NVH and the components to which it is mounted or abuts is nothing more than the use of a known technique to make known improvements in the same way to similar components in the same technology area.”

(Ex. 1002, Lequesne Decl. ¶ 164, 49, 51, 165, 172, 177, 179, 184-86, 196, 200, 278-79, 281, 284)

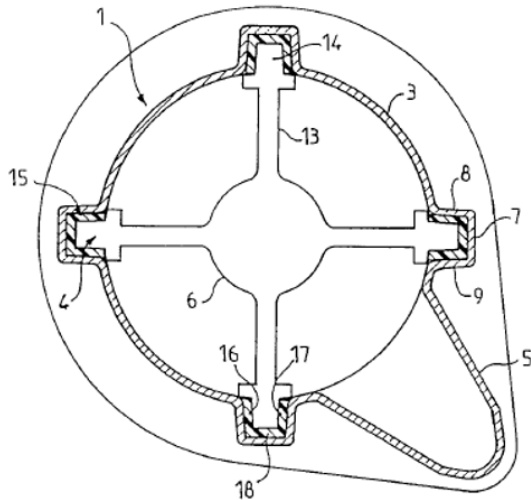
Using Multiple Isolators Was Also Obvious

- PO argues that a POSITA would not use multiple isolators.

(POR, Paper 12, pp. 42, 55)

- But, the art, including Boucheret, explicitly uses multiple isolators to dampen NVH.

(Ex. 1010, Boucheret, Fig. 3, Abstract, 3:15-22, 4:44-56; Ex. 1014, pp. 207-209; Reply, Paper 18, p. 12)



Each end portion **14** of a fastening lug **13** is equipped with a removable damping element **15** of resilient material, in the

In addition, the fastening device described above is adapted for a motor having four fastening lugs, but it is clear that it will be possible to provide housings having a smaller or greater number of cavities, according to the number of fastening lugs of the electric motor.

(Ex. 1010, Boucheret, Fig. 3, 3:15-16, 4:52-56)

Using Multiple Isolators Was Also Obvious

- PO argues that a POSITA would not use multiple isolators.
(POR, Paper 12, pp. 42, 55)
- Both experts agree using multiple isolators was known:

Petitioner's expert:

“[T]he use of multiple, essentially duplicative, isolators simply ... provides additional NVH reduction in one or multiple directions.”

“A POSA aiming at reducing NVH will determine ... the source and path of the ... NVH ... and place isolators either at the source, or in the path, of the vibration and noise (or both).”

“The use of either single or multiple isolators is obvious, and whether a designer uses one or more than one depends on how much damping he wants to achieve The art I cited ... all used multiple isolators.”

(Ex. 1002, Lequesne Decl. ¶ 172, 177; Ex. 1021, Lequesne 2d Decl., ¶ 19)

Using Multiple Isolators Was Also Obvious

- PO argues that a POSITA would not use multiple isolators.

(POR, Paper 12, pp. 42, 55)

- Both experts agree using multiple isolators was known:

PO's expert:

Q: Would they [POSITAs] be familiar with systems that use multiple or overlapping isolators?

A: If by that you mean would they understand that there could be more than one vibration isolator used in a system, I think they would understand that, yes.

(Ex. 1022, Stein Depo., pp. 120:24-121:4, see also pp. 116:20-118:14, 120:8-23)

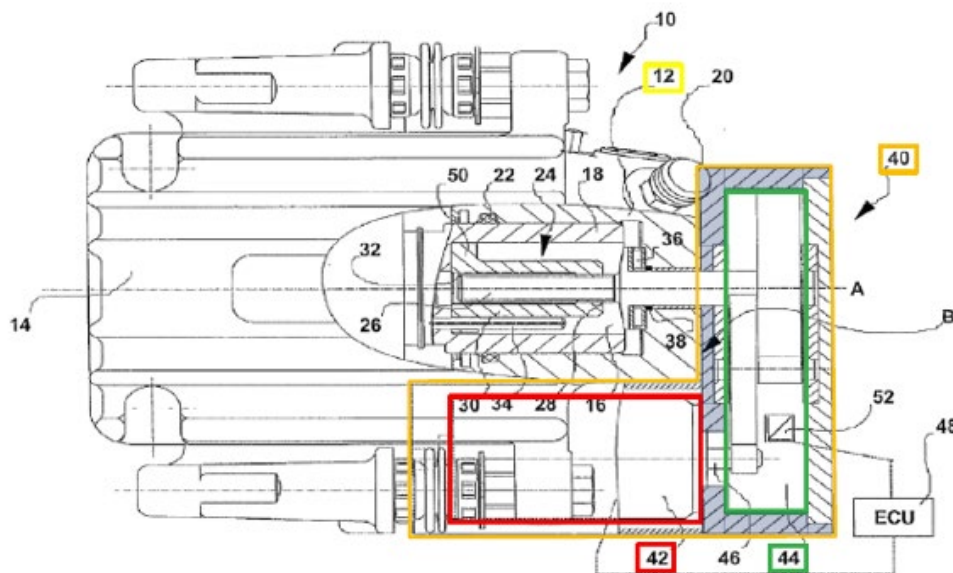
Roadmap

- Overview of the '415 Patent
- Overview of the Prior Art
- What Is Not in Dispute
- Claim Construction Should Apply Ordinary Meaning
 - No need to read limitations into construction of “sub-frame” and “housing”
- Motivation Exists to Combine Poertzgen and Boucheret
 - Claims use known components (isolators) in their expected manner to achieve the predicted result (NVH dampening)
 - PO's arguments rely on unsupported, unclaimed differences between references
- Poertzgen Teaches a Sub-frame and Motor Isolation Cavity

Poertzgen Teaches a Sub-Frame

- The Petition identified multiple obvious sub-frames (**gray**) in Poertzgen on which the gears (**green**) and motor (**red**) are mounted:

(Pet., Paper 2, pp. 24-25, 45; Ex. 1002, Lequesne Decl., ¶¶ 115-17, 119; Reply, Paper 18, pp. 13-17; Ex. 1007, Poertzgen, Abstract, 2:24-30, 8:5-16)

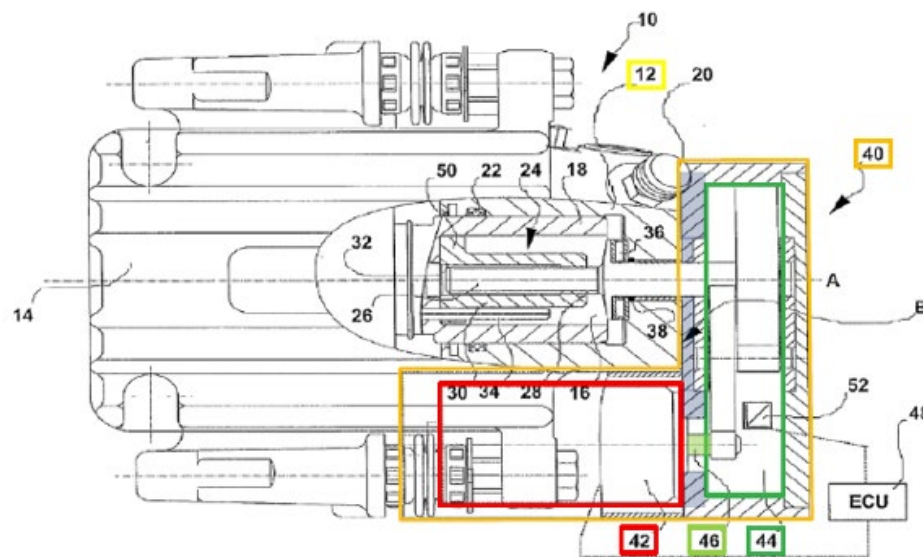


Ex. 1007, Figure 1 (annotated).

Poertzgen Teaches a Sub-Frame

- The Petition identified multiple obvious sub-frames (**gray**) in Poertzgen on which the gears (**green**) and motor (**red**) are mounted:

(Pet., Paper 2, pp. 24-25, 45; Ex. 1002, Lequesne Decl., ¶¶ 116-19; Reply, Paper 18, pp. 13-17; Ex. 1007, Poertzgen, p. Abstract, 2:24-30, 8:5-16)

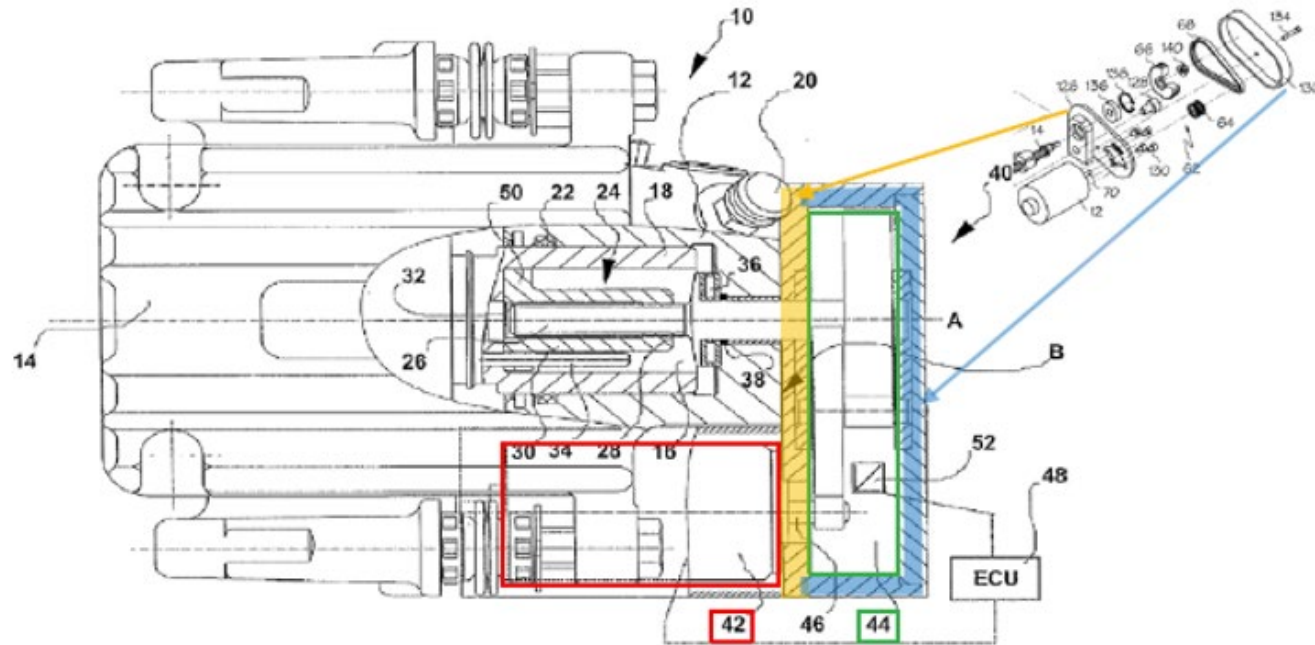


Ex. 1007, Figure 1 (annotated)

Poertzgen-Drennen Teaches a Sub-Frame

- The Petition identified a sub-frame (**yellow**) in Poertzgen-Drennen on which the gears (**green**) and motor (**red**) are mounted:

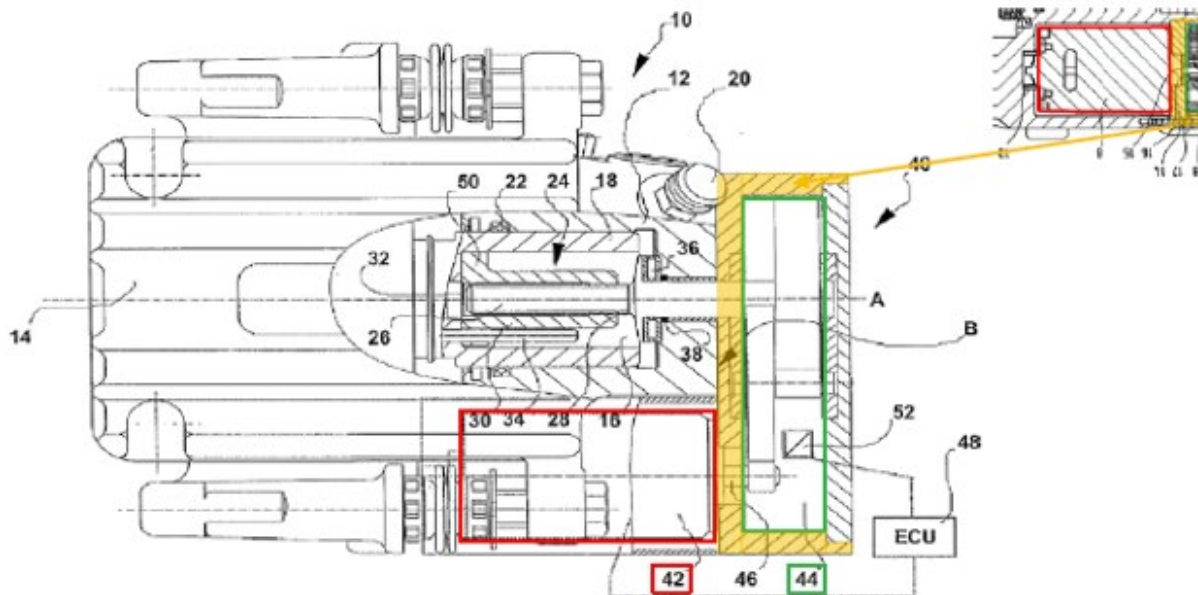
(Pet., Paper 2, p. 57; Ex. 1002, Lequesne Decl., ¶¶ 217-38; Reply, Paper 18, pp. 13-17)



Poertzgen-Weiler Teaches a Sub-Frame

- The Petition identified a sub-frame (**yellow**) in Poertzgen-Weiler on which the gears (**green**) and motor (**red**) are mounted:

(Pet., Paper 2, pp. 66; Ex. 1002, Lequesne Decl., ¶¶ 241-62; Reply, Paper 18, pp. 13-17)



Ex. 1007, Figure 1 (annotated); Ex. 1012, Figure 2 (rotated excerpt, annotated)

Although Not Required, Each of the Sub-Frames Is Distinct from the Actuator Housing

- PO (wrongly) asserts that a sub-frame must be distinct from the actuator housing.

(POR, Paper 12, p. 16)

- But **all** of the sub-frames in the Petition are distinct from the actuator housing, e.g., the housing surrounding the motor and covering the gears. No sub-frame is indistinct from or fully coextensive with the actuator housing.

(Pet., Paper 2, pp. 24-25, 57, 66; Reply, Paper 18, pp. 14-16)

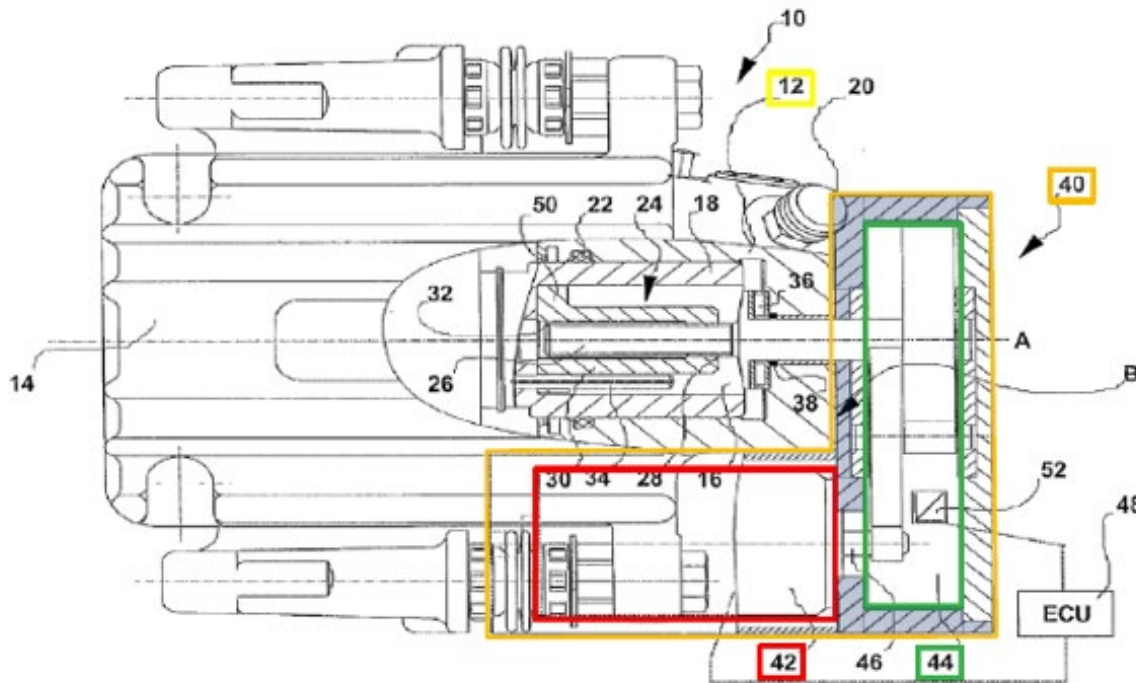
- In the '415 patent, both the sub-frame and the actuator housing may enclose actuator components, and the actuator housing, like the sub-frame, need not enclose all actuator components.

(Reply, Paper 18, pp. 16-17; Ex. 1001, 1:66-67, 7:20-23, 7:30-33, claims 9, 12-13, 18, 20, 22; Ex. 1022, Stein Depo, 125:3-131:17, 133:1-6)

Poertzgen Teaches a Motor Cavity

- The Petition identified a motor cavity in Poertzgen:

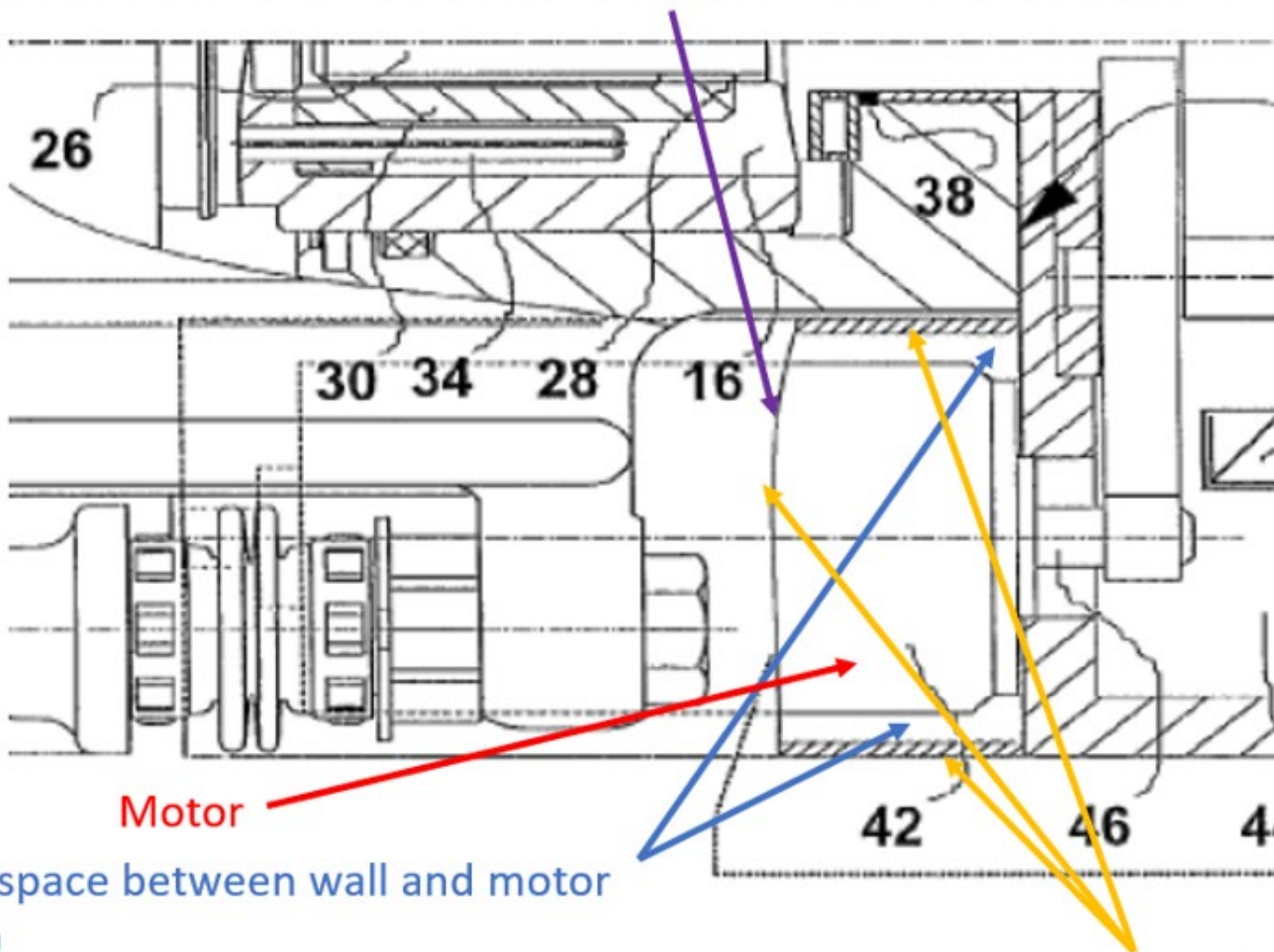
(Pet., Paper 2, pp. 26-27, 33, 50-51; Ex. 1002, Lequesne Decl., ¶¶ 126-28; Reply, Paper 18, pp. 17-19; Ex. 1007, Poertzgen, p. 8:9-13)



Ex. 1007, Figure 1 (annotated).

Poertzgen Teaches a Motor Cavity (Blue)

Line showing where housing wall is cutaway to more clearly show motor



Empty space between wall and motor
(cavity)

(Reply, Paper 18, pp. 17-19, Ex. 1002, Lequesne Decl., ¶¶ 126-28)

Wall of housing

Roadmap (cont.)

- Weiler Teaches an Actuator Housing and Isolation Bushing
- There is Motivation to Combine Weiler and Boucheret
- PO's Alleged Evidence of Non-obviousness Lacks Nexus
- Dr. Lequesne meets and surpasses the skill of a POSITA
- These Proceedings are Constitutional
- IPRs May be Brought on Expired Patents

Weiler Teaches an Actuator Housing

- The Petition identified an actuator housing (yellow) in Weiler:

(Pet., Paper 2, pp. 13-14, 73-75; Ex. 1002, Lequesne Decl., ¶¶ 266-67; Reply, Paper 18, pp. 19-20; Ex. 1012, Weiler, p. Abstract, 2:17-28, 6:10-7:2, 8:16-25, 13:28-14:9)

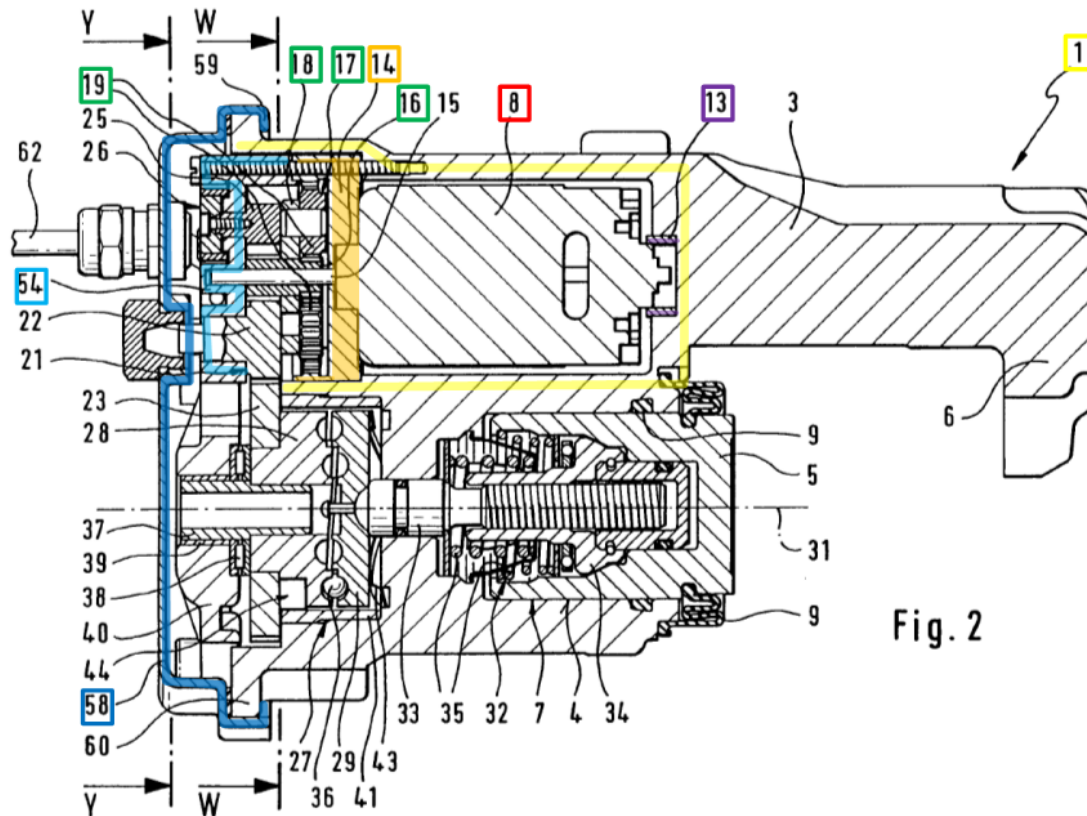


Fig. 2

The Ordinary Meaning of Actuator Housing Applies

- The POR proffers that an actuator housing is “an outer casing of the actuator.” But to avoid Weiler, PO further limits “actuator housing”: it cannot be a portion of a brake caliper.

(POR, Paper 12, p. 19; Reply, Paper 18, pp. 19-20)

- The Board preliminarily rejected this argument:

challenged claims 24 and 25 do not recite a brake caliper, much less require that the recited “actuator housing” be a structure separate from the brake caliper. Patent Owner also fails to identify any lexicographic definition or disclaimer sufficient to limit the claim term “actuator housing” to a structure separate from a brake caliper. On the facts presented here, it appears that

(Inst. Dec., Paper 9, pp. 36-37)

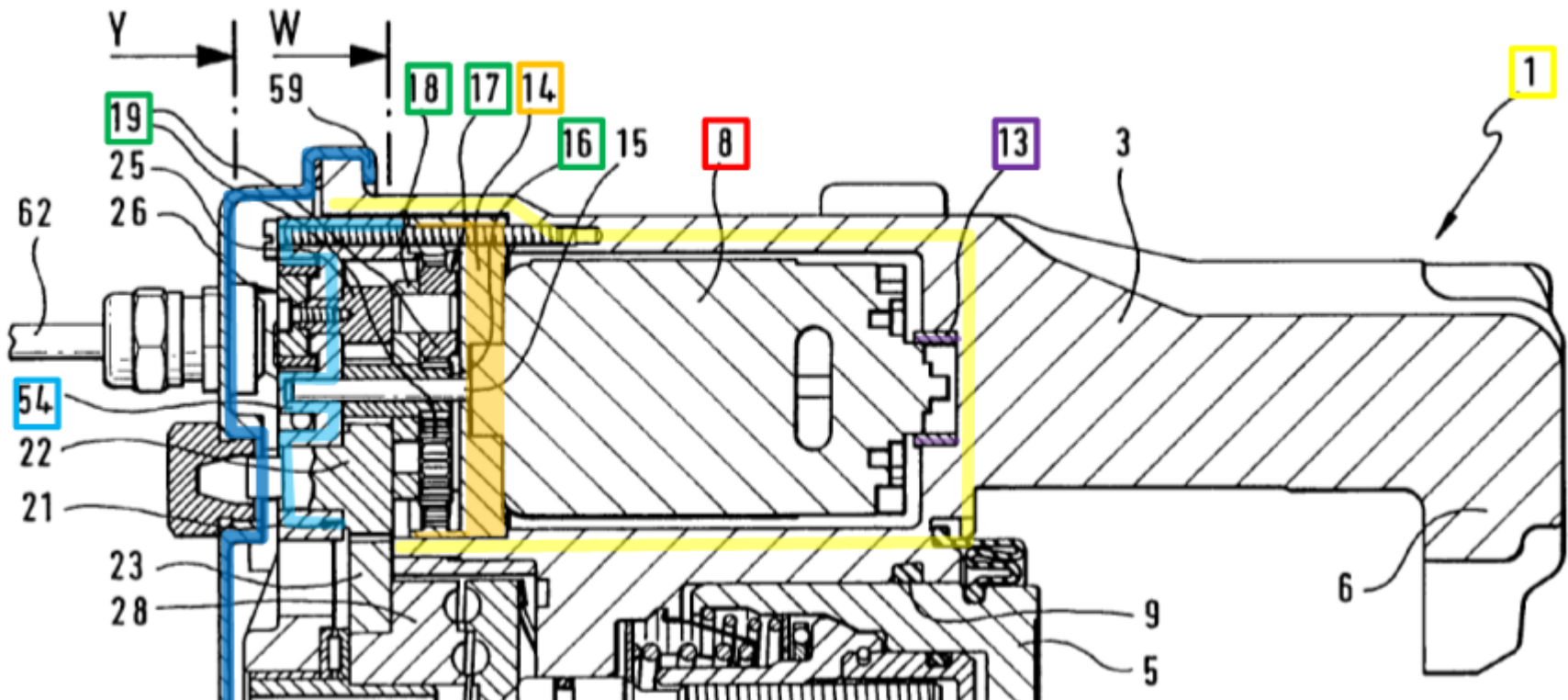
- The Board remains correct: Nothing in the ’415 patent restricts actuator housing to anything other than a structure that houses at least part of the actuator.

(Reply, Paper 18, p. 20; Ex. 1001, Fig. 3)

Weiler Teaches an Isolation Bushing

- The Petition identified an isolation bushing (13 purple) in Weiler between the motor and housing:

(Pet., Paper 2, pp. 13-14, 78-80; Ex. 1002, Lequesne Decl., ¶¶ 275-77; Reply, Paper 18, pp. 20-23; Ex. 1012, 8:16-25, Fig. 2)



Weiler Teaches an Isolation Bushing

- The isolation bushing is physically interposed between the motor and the housing, and thus isolates the motor from the housing.
- Although not claimed, the Petition also explained that it was obvious for this bushing to be made from a material such as rubber or polymer, known for reducing NVH.
- But, the claims require no degree of isolation from the motor isolation bushing.

(Pet., Paper 2, pp. 78-80; Ex. 1002, Lequesne Decl., ¶¶ 275-77; Reply, Paper 18, pp. 20-23; Ex. 1012, Weiler, 8:16-25, Fig. 2; Ex. 1022, Stein Depo., 90:12-100:23)

Weiler Teaches an Isolation Bushing

- PO disclaimed claim 23 (requiring an isolation bushing), but disputes that the bushing in Weiler is an isolation bushing for claim 24.
- But PO and its expert offer no claim construction or criterion for a motor isolation bushing that would exclude the bushing in Weiler.
- In any event, Boucheret also teaches adding isolators to Weiler, for the same reasons it teaches adding them to Poertzgen.

(Pet., Paper 2, pp. 78-80; Ex. 1002, Lequesne Decl., ¶ 284; Reply, Paper 18, pp. 20-23; Ex. 1012, 8:16-25, Fig. 2; Ex. 1022, Stein Depo., 90:12-100:23)

Multiple Isolators in Weiler Are Obvious

- PO attacks the usefulness of its own invention by arguing that multiple isolators are redundant.
- But each additional isolator is obvious because it acts exactly as intended to achieve the predictable result (damping NVH).
- If a POSITA wants additional damping of NVH, they would obviously use multiple isolators to achieve this.

(Pet., Paper 2, pp. 78-80; Ex. 1002, Lequesne Decl., ¶¶ 275-77; Reply, Paper 18, pp. 22-23; Ex. 1021, Lequesne 2d Decl., ¶ 19)

Roadmap (cont.)

- Weiler Teaches an Actuator Housing and Isolation Bushing
- There is Motivation to Combine Weiler and Boucheret
- PO's Alleged Evidence of Non-obviousness Lacks Nexus
- Dr. Lequesne meets and surpasses the skill of a POSITA
- These Proceedings are Constitutional
- IPRs May be Brought on Expired Patents

Isolators Are as Obviously Applicable to Weiler as they are to Poertzgen

- Adding additional isolators to Weiler apply a known technique (placing an isolator between components to reduce NVH, taught in Weiler and Boucheret) to improve a similar device (Weiler's actuator) in the same way (NVH is dampened).
- PO attacks motivation by repeating its errors from Boucheret-Poertzgen: reliance on either fictitious or unclaimed differences between references, ignoring their full teachings, and dumbing down the POSITA.
- And here, Weiler itself also teaches an isolator bushing.

(Pet., Paper 2, pp. 80-83, 36-49; Ex. 1002, Lequesne Decl., ¶¶ 284, 160, 175-81; POR, Paper 12, p. 51; Reply, Paper 18, pp. 22-23; Ex. 1021, Lequesne 2d Decl., ¶ 19)

Roadmap (cont.)

- Weiler Teaches an Actuator Housing and Isolation Bushing
- There is Motivation to Combine Weiler and Boucheret
- PO's Alleged Evidence of Non-obviousness Lacks Nexus
- Dr. Lequesne meets and surpasses the skill of a POSITA
- These Proceedings are Constitutional
- IPRs May be Brought on Expired Patents

PO's Evidence of Non-Obviousness Lacks Nexus

In order to demonstrate nexus, a patentee must show:

“the asserted objective evidence is tied to a specific product and that product embodies the claimed features, and is coextensive with them.”

Fox Factory, Inc. v. SRAM, LLC, 944 F.3d 1366, 1373 (Fed. Cir. 2019)

(Motion, Paper 23, pp. 5-6; Reply, Paper 26, p. 1)

PO's Evidence of Non-Obviousness Lacks Nexus

Regarding **copying**, PO cannot show:

- The alleged presentation (Ex. 2012) embodies the claims of the '415 patent.
- The alleged presentation was presented to anyone, much less to someone who designed the accused products.
- The design in the alleged presentation was copied.
- The accused products embody and are coextensive with the claims.

(POR, Paper 12, p. 60-63; Reply, Paper 18, pp. 25; Motion, Paper 23, pp. 2-3, 8-12; Reply, Paper 26)

PO's Evidence of Non-Obviousness Lacks Nexus

Regarding **copying**, PO cannot show:

- The alleged presentation (Ex. 2012) embodies the claims of the '415 patent.
 - The figures of the presentation fail to identify any part as an “isolator” or “sub-frame.”
 - Mr. Patrick is not an expert and cannot opine on whether the presentation teaches an isolator and sub-frame as claimed. And, he does not compare any claim of the '415 patent to the presentation.
 - Dr. Stein does not even bother to analyze the presentation at all.

(Ex. 2012, p. 22; Ex. 2011, ¶ 6; Reply, Paper 18, pp. 25; Motion, Paper 23, pp. 2-3, 8-12; Reply, Paper 26)

PO's Evidence of Non-Obviousness Lacks Nexus

Regarding **copying**, PO cannot show:

- The alleged presentation was presented to anyone, much less to someone who designed the accused products.
 - Mr. Patrick did not attend any presentation, and cannot say what, if anything, was shown or said to whom.

4. On February 21, 2003, SRI gave a presentation to TRW, which is attached to this proceeding as Ex. 2012. While I was part of the team that prepared the presentation to TRW, I did not attend the presentation. Regardless, I am familiar with the contents of the presentation and the work that went into preparing for the presentation.

(Ex. 2012, p. 22; Ex. 2011, ¶ 4; Reply, Paper 18, pp. 25; Motion, Paper 23, pp. 2-3, 8-12; Reply, Paper 26)

PO's Evidence of Non-Obviousness Lacks Nexus

Regarding **copying**, PO cannot show:

- The design in the alleged presentation was copied.
 - Mr. Patrick does not compare the presentation to any accused product or the claims of the '415 patent.
 - Mr. Patrick is not an expert and cannot opine on whether the presentation or any other product meets the claims of the '415 patent or are so close in design as to have been copied from each other.
 - Dr. Stein does not analyze the presentation at all, nor does he provide an analysis that reads the claims of the '415 patent on the accused product.

(Ex. 2011, ¶ 6; Ex. 2005, Stein Decl., ¶ 163; Reply, Paper 18, pp. 25; Motion, Paper 23, pp. 2-3, 8-12; Reply, Paper 26)

PO's Evidence of Non-Obviousness Lacks Nexus

Regarding **copying**, PO cannot show:

- The accused products embody and are coextensive with the claims.

- Dr. Stein concludes **without analysis** that the accused products correspond to claims of the '415

this regard, I have reviewed the claim charts of Ex. 2016, which I understand includes photographs of two products sold by Petitioners (or their affiliate), and I agree that the claim charts establish that there is a component in each of the photographed products that corresponds to each one of the claim elements. Further, I have inspected one of the photographed products and my inspection supports my overall agreement with the positions taken in the claim charts.

(Ex. 2005, Stein Decl., ¶ 163; Reply, Paper 18, pp. 25; Motion, Paper 23, pp. 2-3, 12; Reply, Paper 26)

PO's Evidence of Non-Obviousness Lacks Nexus

Regarding **copying**, PO cannot show:

- The accused products embody and are coextensive with the claims.
 - Dr. Stein concludes without analysis that the accused products are coextensive with the claims; he was simply told that by PO's lawyers.

shown in Ex. 2016. I understand the EPBAs in Ex. 2016 are co-extensive in scope with the '415 Patent, meaning the EPBAs of Ex. 2016 do not include any critical unclaimed features that materially impact the product's functionality. I am unaware of any unclaimed features that would have driven sales.

(Ex. 2005, Stein Decl., ¶ 166; Reply, Paper 18, pp. 25; Motion, Paper 23, pp. 2-3, 12; Reply, Paper 26)

PO's Evidence of Non-Obviousness Lacks Nexus

Regarding **industry praise**, PO cannot show that claimed features of any product were praised.

- Dr. Stein's lack of analysis:

165. I have reviewed Ex. 2010 and read this document as praising the Petitioners' EPBA, and I understand at least some of the EPBAs being praised are the same EPBAs shown in Ex. 2016. Therefore, this document constitutes praise for the invention of the '415 Patent.

- Ex. 2010 mentions no particular product, and praises only unclaimed features, e.g., enhanced fuel economy.

(Ex. 2005, Stein Decl., ¶ 165; Reply, Paper 18, pp. 25-26; Motion, Paper 23, pp. 2-3, 8-12; Reply, Paper 26)

PO's Evidence of Non-Obviousness Lacks Nexus

Regarding **commercial success**, PO cannot show the relative success of a particular product that embodies and is coextensive with the claims.

- Dr. Stein does not provide an analysis that reads the claims of the '415 patent on the accused product.
- Ex. 2009 says nothing about commercial success or sales, and PO has not shown the product in Ex. 2009 meets the claims of the '415 patent.
- Exs. 2010, 2017 & 2018 give no sales for any EPBA, much less one covered by the '415 patent.

(Ex. 2005, Stein Decl., ¶¶ 163, 166; Reply, Paper 18, pp. 26-27; Motion, Paper 23, pp. 2-7, 12-14; Reply, Paper 26)

Roadmap (cont.)

- Weiler Teaches an Actuator Housing and Isolation Bushing
- There is Motivation to Combine Weiler and Boucheret
- PO's Alleged Evidence of Non-obviousness Lacks Nexus
- Dr. Lequesne meets and surpasses the skill of a POSITA
- These Proceedings are Constitutional
- IPRs May be Brought on Expired Patents

The Field of the '415 Patent Is Actuators

(12) **United States Patent**
Farmer et al.

(10) **Patent No.:** **US 7,021,415 B2**

(45) **Date of Patent:** **Apr. 4, 2006**

(54) **ELECTRO-MECHANICAL ACTUATOR FOR
AN ELECTRICALLY ACTUATED PARKING
BRAKE**

(56) **References Cited**
U.S. PATENT DOCUMENTS

FIELD OF THE INVENTION

The present invention relates generally to electrically actuated parking brake systems for passenger vehicles, and, in particular, to an actuator assembly for controlling the parking brake function within passenger vehicles.

(Ex. 1001, cover, 1:16-22)

The Field of the '415 Patent Is Not Isolators

- Many claims require no isolators.
- Claims that require isolators do not require any particular amount of NVH damping:

4 Q. So if I build an actuator that's as
5 loud as a lawn mower, am I free and clear of the
6 415 Patent claims in your view?

7 A. The patent is an attempt to define some
8 novel teachings about how to design electronic
9 parking brake systems. It doesn't exclude somebody
10 from being a bad engineer and creating something
11 that maybe follows the patent claims but functions
12 terribly.

(Ex. 1001, claims; Ex. 1022, Stein Depo., 115:12-116:12; Reply, Paper 18, pp. 23-24)

The Field of the '415 Patent Is Not Isolators

- Many claims require no isolators.
- The '415 Patent explicitly contemplates noisy actuators:

In addition, audible noise is a significant feature differentiating actuators in parking brake systems and many other actuation applications. In some applications, a loud system is desirable to alert an operator that the actuator is being cycled. In other applications, a quiet system is desirable to keep in-cabin noise to a minimum. 35

There is therefore a need for an efficient, reliable and cost-effective actuator design for a vehicle parking brake system that overcomes the deficiencies of the prior art. There is a further need for a method of tuning the actuator for audible noise performance. 40 45

(Ex. 1001, 1:34-45; Reply, Paper 18, pp. 23-24; Ex. 1002, Lequesne 1st Decl., ¶ 164)

The Field of the '415 Patent Is Not Isolators

- PO argues the POSITA must spend years studying noise attenuation in particular because, after the filing of the IPR Petition, it disclaimed all claims lacking isolators.
- PO's disclaimer does not change the field of the invention or the knowledge of a POSITA.

(POR, Paper 12, p. 14; Ex. 1001, 1:16-22; Reply, Paper 18, pp. 23-24)

Dr. Lequesne Is an Expert in Vehicle Actuators and Is at Least a POSITA

- Decades of experience designing electromechanical systems for the automotive industry.
- Has actually worked on brake systems, and is knowledgeable about NVH.
- Recipient of IEEE's annual Nikola Tesla Award, 2016, awarded "For contributions to the design and analysis of actuators, sensors, and motors for automotive applications."
- IEEE Fellow, 1997, "For contributions to the development of electromechanical actuators for automotive applications."

(Ex. 1023; Ex. 1003; Ex. 1002, Lequesne Decl., ¶¶ 7-9; Ex. 2007, Lequesne Depo., 10:6-17, 11:21-16:3, 20:3-31:8; Reply, Paper 18, pp. 23-24)

Dr. Lequesne Is an Expert in Vehicle Actuators and Is at Least a POSITA

- Petitioner's POSITA:

19. At the time of the alleged invention of the '415 Patent, a POSA would have had a bachelor's degree (or equivalent) in mechanical engineering, electrical engineering, automotive engineering, or a similar discipline, and at least two years of experience with electromechanical devices such as actuators.

(Petition, Paper 2, p. 16; Ex. 1002, Lequesne Decl., ¶ 19)

Dr. Lequesne Is an Expert in Vehicle Actuators and Is at Least a POSITA

- PO's POSITA:

57. I believe a more precise definition of a POSA at the time of the invention would be someone that would have had a bachelor's degree (or equivalent) in mechanical engineering, automotive engineering, or a similar discipline, and at least two years of experience with vibration isolation, vibration damping, or noise attenuation in the context of mechanical or electromechanical systems.

(Ex. 2005, Stein Decl., ¶ 57)

Dr. Lequesne Is an Expert in Vehicle Actuators and Is at Least a POSITA

Dr. Lequesne:

20. My analysis and opinions regarding the claims of the '415 Patent have been based on the perspective of a POSA as defined above as of November 13, 2002, the filing date of the U.S. provisional patent application to which the '415 Patent claims priority. At that time, I had advanced degrees (beyond a bachelor's) in electrical engineering. I had worked for 18 years at General Motors and Delphi, on various electromechanical systems being devised for vehicles. In particular, I had been involved with electric brake systems. My patent on the subject for instance, was filed in April of 2002, over 6 months before the '415 patent was filed. As described above and as shown in my CV, I already had extensive experience in the relevant field in the relevant timeframe.

(Ex. 1002, Lequesne Decl., ¶ 20)

Dr. Lequesne Is an Expert in Vehicle Actuators and Is at Least a POSITA

Dr. Lequesne:

Q So is it fair to say that noise attenuation and vibration damping are inherently part of your design considerations within these subjects?

A Yes. I mean, that depends on the specifications, of course, but that's part of the design of electric machine and electromechanical system.

(Ex. 2007, Lequesne Depo, 31:1-8)

Dr. Lequesne Is an Expert in Vehicle Actuators and Is at Least a POSITA

Dr. Lequesne:

Q So I'm just trying to understand -- let me see if I can think of a good way to ask this. What percentage, just roughly, of your job duties between General Motors and Delphi related to noise attenuation or vibration damping?

A My work was -- I would say almost 100 percent electromechanical systems, all aspects that include reducing vibrations and so forth. So in terms of percentages, I don't know.

(Ex. 2007, Lequesne Depo, 14:14-22)

Roadmap (cont.)

- Weiler Teaches an Actuator Housing and Isolation Bushing
- There is Motivation to Combine Weiler and Boucheret
- PO's Alleged Evidence of Non-obviousness Lacks Nexus
- Dr. Lequesne meets and surpasses the skill of a POSITA
- These Proceedings are Constitutional
- IPRs May be Brought on Expired Patents

IPR Proceedings are Constitutional

- IPR proceedings comply with due process:

But, the Federal Circuit’s holding in *Mobility Workx* directly rejected the argument that Patent Owner attempts to raise here. *See Mobility Workx*, 15 F.4th at 1154 (explaining that even the “leadership APJs’ role in budgeting is . . . too remote to constitute a due process violation” and that “[t]he role of other APJs in the budgetary process is even more remote, and even less a due process problem”), 1155 (stating that “congressional control

(Inst. Dec., Paper 9, p. 42)

IPR Proceedings are Constitutional

- IPR proceedings comply with the Appointments Clause:

Ct. at 1985). However, the Federal Circuit already addressed and rejected this argument. *See In re Palo Alto Networks, Inc.*, 44 F.4th 1369, 1377 (Fed. Cir. 2022) (“We conclude that the delegation of authority as to whether to institute IPR and PGR proceedings to the Board and the Director’s policy refusing to accept party requests for Director rehearing of decisions not to institute do not violate the Appointments Clause.”) In view of this controlling precedent, Patent Owner’s argument is not persuasive.

(Inst. Dec., Paper 9, p. 43)

Roadmap (cont.)

- Weiler Teaches an Actuator Housing and Isolation Bushing
- There is Motivation to Combine Weiler and Boucheret
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- These Proceedings are Constitutional
- IPRs May be Brought on Expired Patents

IPRs May be Conducted for Expired Patents, as the Board has Repeatedly Held

- “Inter partes review covers expired patents.”

Apple, Inc. v. Gesture Tech. Partners, LLC, IPR2021-00922, Paper 26 at 25-27 (PTAB Nov. 28, 2022)

The statutes governing *inter partes* review also do not limit the proceedings to non-expired patents. For example, 35 U.S.C. § 311(b), which sets forth the scope of *inter partes* review, merely refers to patents, with no mention of the expiration date. Further, 35 U.S.C. § 311(c) entitled “Filing Deadline” makes no mention of the expiration date of the patent. Elsewhere, 35 U.S.C. § 315 does limit the filing of IPRs based on civil actions and the serving of complaints, but again makes no mention of the expiration date of

(Reply, Paper 18, pp. 27; Inst. Dec., Paper 9, pp. 41-42)

PO's Procedural Arguments are Meritless

- PO argues the Petition failed to argue that a POSITA would understand that Poertzgen's and Weiler's motors generate NVH that needs to be dampened.

(Sur-Reply, Paper 19, p. 17)

- The Petition (and Dr. Lequesne) repeatedly explained that the POSITA would know motors and gears generate NVH, reducing NVH is beneficial, and it was obvious to place an isolator anywhere along the path of transmission to dampen NVH.

(Pet., Paper 2, pp. 35-38, 40-41, 43-45, 47-49, 79-83; Ex. 1002, Lequesne 1st Decl., ¶¶ 48-52, 159, 161-66, 172, 175, 177-81, 184-86, 196, 199-200, 277-79, 284)

- The Board recognized this in the Institution Decision.

(Inst. Dec., Paper 9, pp. 23-26, 28, 38-40)

Summary

- A POSITA would be motivated to place isolators between components in Poertzgen's and Weiler's actuators, as taught in Boucheret.
 - The claimed isolators are being used exactly as intended to achieve the expected result – reduction of NVH.
(Pet., Paper 2, pp. 3, 34-52; Reply, Paper 18, pp. 1-13)
- PO's arguments against MTC rely on unsupported or unclaimed distinctions between references.
 - Fictitious in that, e.g., Poertzgen, Weiler, and Boucheret do not require any particular tolerances or motor control.
 - Unclaimed and irrelevant in that the claims do not require any particular tolerances or motor control.
(Reply, Paper 18, pp. 1-13)
- A POSITA would have been able to successfully place isolators between components in Poertzgen's and Weiler's actuators.
 - Passive isolators are well-known and simple to implement.
 - The claims require no particular level of performance from the isolators or actuator.
(Pet., Paper 2, pp. 3, 34-52; Reply, Paper 18, pp. 4-8)
- “Sub-frame” and “actuator housing” should be given their ordinary meaning, instead of having unnecessary limitations added to avoid the art.
(Pet., Paper 2, pp. 16; Reply, Paper 18, pp. 13-17, 19-20, Inst. Dec., Paper 9, pp. 36-37)